PATENT SPECIFICATION

328,145

Application Date: May 29, 1929. No. 16,697/29.

Complete Left: Feb. 28, 1930.

Complete Accepted: April 24, 1930.

PROVISIONAL SPECIFICATION.

Improvements in or relating to Wrapping Machines.

We, ALFRED GERMAN ROSE, British Subject, and ROSE BROTHERS (GAINSBOROUGH) LIMITED, a British Company, both of Albion Works, Gainsborough, in the County of Lincoln, do hereby declare the nature of this invention to be as follows:—

This invention is for improvements in or relating to wrapping machines and more particularly to that type of wrapping machine which comprises a movable carrier, (such as a wheel, an endless chain, an oscillatable arm or the like) provided with one or more receiving pockets and movable intermittently to bring said pocket (or each pocket in turn, as the case may be) into a position opposite to a reciprocating pusher which operates intermittently to feed the articles to be wrapped one at a time from a table or the like into the carrier pockets or pockets. In this type of machine a wrapper (e.g. cut from a continuous web fed intermittently across the path of the pusher) is located in front of the receiving pocket so that as the pusher advances the article the wrapper is carried with it and partially folded about it.

It is the object of this invention to provide improvements in the above type of machine to enable it to be used for wrapping that class of sweetmeats known in the confectionery trades by the name of "Sucettes"; (a sucette comprising a piece of toffee or similar sweet material provided with a stem or handle usually of wood).

Accordingly, this invention provides a wrapping machine of the type above described for wrapping "sucettes", comprising an intermittently rotatable pocket wheel or other movable carrier, a conveyor operable to convey the sucettes from a loading station into the path of the charging pusher which works in conjunction with the carrier aforesaid and guides which are associated with the carrier and with the conveyor, and are arranged to locate the stems of the sucettes in their correct positions. Such a machine may employ an intermittently rotatable pocket wheel and a stationary guide slot associated with the wheel and extending in the direction of travel, in which guide slot the stem of each successive sucette is engaged as aforesaid.

According to another feature of this invention the conveyor is provided on its periphery with a plurality of cavities each to accommodate the body portion of a sucette and having associated therewith a recess or notch to engage the sucette stem.

According to another feature of this invention a stationary guard may be provided adjacent to a portion of the periphery of the conveyor to retain the sucettes therein and a spring gate or similar device may be located in the path of the pusher, through which gate the sucettes are forced into the pocket wheel.

In each pocket in the pocket wheel or the like, the opposing walls may be provided with a groove or recess to engage the periphery of the sucette, and one or both of the said walls may be arranged to move outward to permit the insertion of the sucette.

During the advance of the pocket wheel the wrapper is folded into tubular shape around the sucette, and twisting mechanism is provided to close the ends of this tube. According to a subsidiary feature of this invention the twisting mechanism comprises rotatable jaws on either side of the pocket wheel or the like, arranged to close upon the tube ends, and those jaws adjacent to the sucette stems being so constructed that when closed an aperture is left of sufficient size to permit their free rotation around the stem. The twisting mechanism upon either or both sides of the pocket wheel may be arranged to move inward when in operation to follow the shortening end, or ends, of the tube.

In one construction according to this invention the wrapping machine comprises an intermittently rotating pocket wheel, provided on its periphery with a series of pockets and actuated through Geneva stop mechanism. Adjacent to the pocket wheel is a conveyor wheel having on its periphery a series of recesses shaped to accommodate the body-portions of sucettes, which, in this instance, are ellipsoidal in form. Associated with each

recess is a notch in the rim of the conveyor to engage the end of each sucette stem and maintain it parallel to the axis of rotation. Both the conveyor and the pocket wheel rotate in a vertical plane and the sucettes are fed into the conveyor at the top. Around a portion of the periphery of the conveyor is a stationary guide plate keeping the sucettes in position.

This wrapping machine embodies both a rotatable pocket wheel and a rotatable conveyor, and is further characterised in that the transfer station is located at the "pass" between the two wheels.

At a point level with the axis of the conveyor a spring gate is located through which each sucette is in turn forced by an oscillating pusher into the pocket wheel. The pocket wheel is provided with six peripheral pockets, one side of which is arranged to pivot and open to receive a sucette; the faces of the two opposed sides of the pockets being recessed or grooved to engage the edge of the ellipsoidal body. The web of the wrapping paper is fed down the face of the pocket wheel into the path of the pusher so that when the sucette is forced into the pocket wheel it carries with it a wrapper, which is thus given a U-formation. During the travel of the pocket wheel this wrapper is by known means wrapped around the face of the sucette to form an open ended tube through one end of which the sucette stem projects. These wrapping operations are carried out during approximately 180° travel. Associated with the pocket wheel and extending approximately through this 180° is a guide member provided with a groove in which the stem of the sucettes are engaged and thus maintained in a position parallel to the axis of rotation. Opposite the pusher and on either side of the pocket wheel are two twisters which each comprise a pair of jaws which may be closed upon the wrapper and rotated to twist up and close the ends of the tube. The jaws of that twister lying upon the same side as the sucette stems are provided with a channel to freely encircle the stem while the twisting operations are being carried out. One or both of the twisters may be arranged to slide in towards the wheel and thus follow the shortening of the wrapper ends.

It will be appreciated that the aforesaid guide slot ensures that the stems of the sucettes will always lie within the channels of the twister.

If desired mechanism (for example, as described in Specification No. 293,907) may be provided to co-operate with the pusher and engage both sides of the wrapper, so that during the transfer of wrapper and sucette into the pocket wheel they will be supported and their movement controlled.

Dated this 29th day of May, 1929.
BOULT, WADE & TENNANT,
111 & 112, Hatton Garden, London, E.C. 1,
Chartered Patent Agents.

COMPLETE SPECIFICATION.

Improvements in or relating to Wrapping Machines.

We, ALFRED GERMAN ROSE, a British Subject, and ROSE BROTHERS (GAINSBOROUGH) LIMITED, a British Company, both of Albion Works, Gainsborough, in the County of Lincoln, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention is for improvements in or relating to wrapping machines and more particularly to that type of wrapping machine which comprises a movable carrier, (such as a wheel, an endless chain, an oscillatable arm or the like) provided with one or more receiving pockets and movable intermittently to bring said pocket (or each pocket in turn, as the case may be) into a position opposite to a reciprocating pusher which operates intermittently to feed the articles to be wrapped one at a time from a table or the like into the carrier pockets or pockets. In this type of machine a wrapper (e.g. cut from a continuous web fed intermittently across the path of the pusher) is located in front of the receiving pocket so that as the pusher advances the article the wrapper is carried with it and partially folded about it.

It is the object of this invention to provide improvements in the above type of machine to enable it to be used for wrapping that class of sweetmeats known in the confectionery trades by the name of "Sucettes"; (a sucette comprising a piece of toffee or similar sweet material provided with a stem or handle usually of wood).

Accordingly, this invention provides a wrapping machine of the type above described for wrapping "sucettes", com-

prising an intermittently rotatable pocket wheel or other movable carrier, a conveyor operable to convey the sucettes from a loading station into the path of the charging pusher which works in conjunction with the carrier aforesaid and guides which are associated with the carrier and with the conveyor, and are arranged to locate the stems of the sucettes in their correct positions (e.g. at right angles to their path of travel). Such a machine may employ an intermittently rotatable pocket wheel and a stationary guide slot associated with the wheel and extending in the direction of travel, in which guide slot the stem of each successive sucette is engaged for the purpose aforesaid.

According to another feature of this invention the conveyor is provided on its periphery with a plurality of cavities each to accommodate the body portion of a sucette and having associated therewith a recess or notch to engage the sucette stem.

According to another feature of this invention a stationary guard may be provided adjacent to a portion of the periphery of the conveyor to retain the sucettes therein and a spring gate or similar device may be located in the path of the pusher, through which gate the sucettes are forced into the pocket wheel.

In each pocket in the pocket wheel or the like, the opposing walls may be provided with a groove or recess to engage the periphery of the sucette, and one or both of the said walls may be arranged to move outward to permit the insertion of the sucette.

During the advance of the pocket wheel the wrapper is folded into tubular shape around the sucette, and twisting mechanism is provided to close the ends of this tube. According to a subsidiary feature of this invention the twisting mechanism comprises rotatable jaws on each side of the pocket wheel or the like, arranged to close upon the tube ends, and those jaws adjacent to the sucette stems being so constructed that when closed an aperture is left of sufficient size to permit their free rotation around the stem. The twisting mechanism upon either or both sides of the pocket wheel may be arranged to move inward when in operation to follow the shortening end, or ends, of the tube.

One construction according to this invention will now be described in detail by way of example with reference to the accompanying drawings, in which

Figure 1 is an elevation of a wrapping machine provided with a rotatable conveyor wheel and a rotatable pocket wheel.

Figure 2 is a view of the pocket wheel looking in the direction of the arrows 2—2 in Figure 1,

Figure 3 is a plan of the conveyor wheel shown in Figure 1,

Figure 4 is a view of the periphery of the conveyor wheel looking in the direction of the arrows 4—4 in Figure 1.

Figure 5 is a section taken on the line 5—5 in Figure 4.

Figure 6 illustrates the twisters by which the ends of the wrapper are twisted together about the sucette.

Figure 7 shows the sucette and its wrapper prior to twisting, and

Figure 8 shows a completely wrapped sucette.

Throughout this description like reference numerals indicate like parts.

The wrapping machine comprises an intermittently rotatable conveyor wheel 10 and an intermittently rotatable pocket wheel 11. The conveyor wheel, as shown in plan in Figure 3, is provided in its periphery with a series of rectangular recesses 12 in which the ellipsoidal bodies 13 of the sucettes are received. The sucettes are provided with stems 14 of, for example, wood and these stems rest parallel to the conveyor wheel axis in notches 15 in the rim 16 of the conveyor wheel. During the intermittent rotation of the conveyor wheel the sucettes are loaded on to it by hand, at the top. The conveyor wheel is rotated in a clockwise direction and in order to keep the sucettes in position during the rotation a stationary guide plate 17 is arranged to encircle a portion (less than a quadrant) of the conveyor wheel periphery. The guide plate 17 and the notches 15 therefore form guides to locate the sucettes in their correct positions during their transfer by the conveyor wheel, that is to say, with the bodies 13 in a substantially tangential plane, and with the stems 14 parallel to the conveyor wheel axis. At the pass between the conveyor wheel 10 and the pocket wheel 11 the sucettes are transferred to the latter as follows: Attached to a bracket 18 is an open rectangular framework 19 which carries two spring pressed flaps 20. The frame 19 is adjustably mounted on the brackets 18 in a vertical position in the pass between the conveyor wheel and the pocket wheel by means of bolts 43 passing through slots 44 into the brackets, and the sucettes are discharged one by one from the conveyor wheel through the gate constituted by the two spring pressed flaps 20 by means of a plunger 21 which is carried upon a bell-crank-lever 22 oscillated, for example, by means of a cam, which is not shown. The flaps 20 are carried upon pivots 45 and are pressed towards the conveyor wheel by coiled springs 46. If desired stops may

be provided to limit the swing of the flaps towards the conveyor wheel.

A web of paper 23 is fed vertically through the pass between the two wheels into the path of the pusher, and individual wrappers 24 are severed from the length of this web so that as each sucette is forced into the pocket in the pocket wheel 11, the wrapper is partly folded around the sucette body 13 in open U-shaped formation as shown in Figure 1. The pocket wheel 11 is provided with six peripheral pockets 25 each constituted by one fixed jaw 26 and one movable jaw 27, the latter being pivotally supported at 28 on the pocket wheel and may be opened (for example by means of a cam) to receive the sucette, the peripheral edges of which rest within the recess 29 in each jaw. Alternatively, instead of the recess 29 being formed as shown in Figure 1, a groove may be formed extending across the face of each jaw parallel to the axis of the wrapping wheel to receive the peripheral edges of the sucette body 13. The movable jaw 27 is forced towards the fixed jaw 26 by a compression spring 30 to grip the sucette resiliently. In Figure 2 the outline of the pocket wheel is shown in dotted lines and the outline of the conveyor wheel in chain dotted lines.

From the transfer station, which is located at the pass between the two wheels, the sucettes are carried step by step by the pocket wheel through 180°, during which period the wrapper is folded around the sucette body by any convenient mechanism to form an open-ended tube, as shown in Figure 7. Associated with the pocket wheel and extending approximately through 180° is a guide member 31 which is provided with an arcuate groove 32 in which the stems 14 of the sucettes are engaged and thus maintained in a position parallel to the axis of the pocket wheel. Upon arrival at a point diametrically opposed to the transfer station the wrappers are engaged by twisting mechanism which operates to twist up and close the ends of the tubular wrapper into the form shown in Figure 8. The twisting mechanism is shown in Figure 6 and comprises two pairs of jaws 33 33 and 34 34, one pair lying upon each side of the pocket wheel. The inner surfaces of the twister jaws are of convex formation, as shown in Figure 1, to facilitate the entry of the wrapper ends between them. The jaws are mounted upon levers 35 and 36 pivoted respectively at 37 and 38. The levers are geared together by arcuate racks 39 and 40 and drawn towards each other by a tension spring 41. The mechanism by which the twister jaws are opened, closed upon the wrapper and rotated to twist up the wrapper ends, may be of any convenient form and if desired one or both sets of twister jaws may be arranged to slide in towards the pocket wheel and thus follow the shortening of the wrapper ends during twisting. That pair of twister jaws 34 34 which lie upon the same side of the pocket wheel as the sucette stems 14 are provided with a channel 42 to freely encircle each stem 14 while the twisting operations are being carried out. Convenient mechanism for imparting intermittent movements of partial rotation to the pocket wheel 11, for opening the pivoted sides 27 of the pockets 25, for folding the wrapper 24 into an open-ended tubular form about the sucettes as shown in Figure 7, for rotating the twister jaws 33 33 & 34 34, and for moving them inwards towards the pocket wheel during the twisting operation, is described and illustrated in British Patent specification No. 150,076.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is:—

1. A wrapping machine of the type described for wrapping "sucettes" comprising an intermittently rotatable pocket wheel or other movable carrier, a conveyor operable to convey the sucettes from a loading station into the path of the charging pusher which works in conjunction with the carrier aforesaid and guides which are associated with the carrier and with the conveyor and are arranged to locate the stems of the sucettes in their correct positions.

2. A wrapping machine according to Claim 1, employing an intermittently rotatable pocket wheel and having a stationary guide slot associated with the wheel and extending in the direction of travel in which guide the stem of each successive "sucette" is engaged for the purpose aforesaid.

3. A wrapping machine according to Claim 1, or Claim 2, wherein the conveyor is provided with a plurality of cavities each to accommodate the body portion of a "sucette" and having associated therewith a recess or notch to engage the "sucette" stem.

4. A wrapping machine according to any of the preceding claims wherein the opposing sides of each pocket in the pocket wheel or the like are provided with recesses to engage the peripheral edges of the "sucette".

5. A wrapping machine according to any of the preceding claims, having a stationary guard adjacent to a portion of the periphery of the conveyor, and a

spring gate located in the path of the pusher, through which gate the "sucettes" are forced into the pocket wheel or the like.

6. A wrapping machine according to any of the preceding claims having twisting mechanism comprising rotatable jaws which are located upon each side of the pocket wheel or the like and are arranged to close upon the ends of the wrapper, characterised in that those jaws which are located upon that side of the pocket wheel or the like at which the "sucette" stems lie are so constructed that when closed an aperture is left between them of sufficient size to permit their free rotation around the stem.

7. A wrapping machine according to any of the preceding claims, having an intermittently rotatable conveyor and an intermittently rotatable pocket wheel, characterised in that the transfer of the "sucettes" is effected at the nip or pass between the two.

8. A wrapping machine of the type described, for wrapping "sucettes", substantially as described herein, or substantially as illustrated in the accompanying drawings.

Dated this 28th day of February, 1930.

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E.C. 1,
Chartered Patent Agents.

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Fig.1.

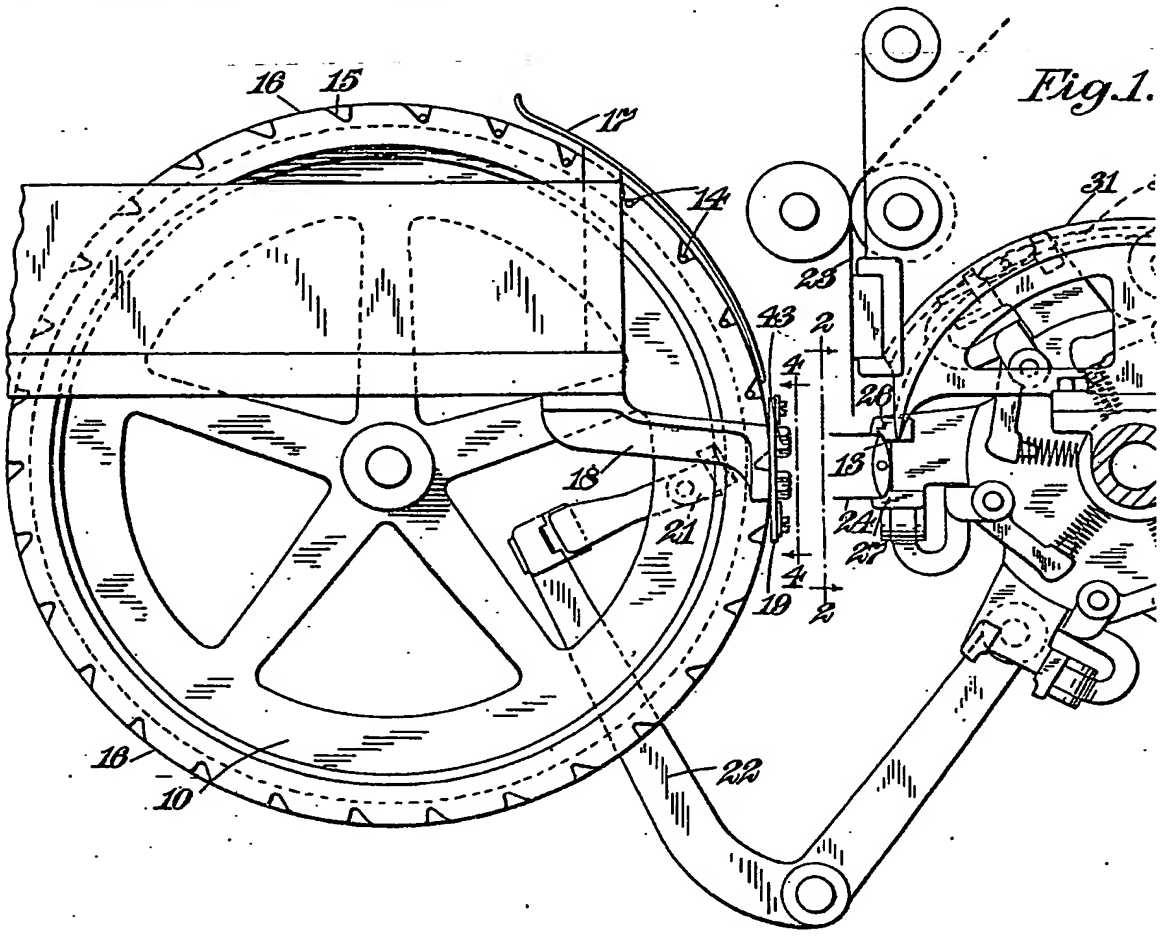


Fig.3.

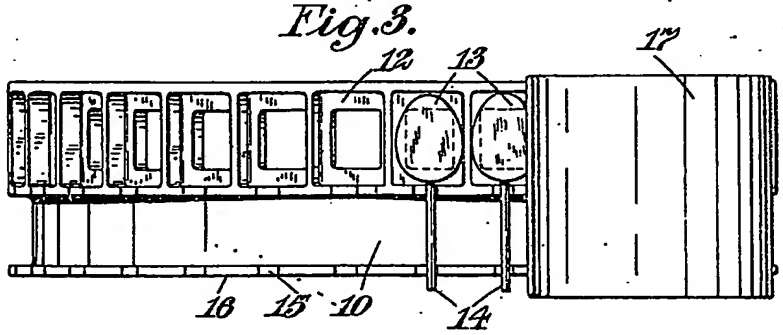


Fig.1.

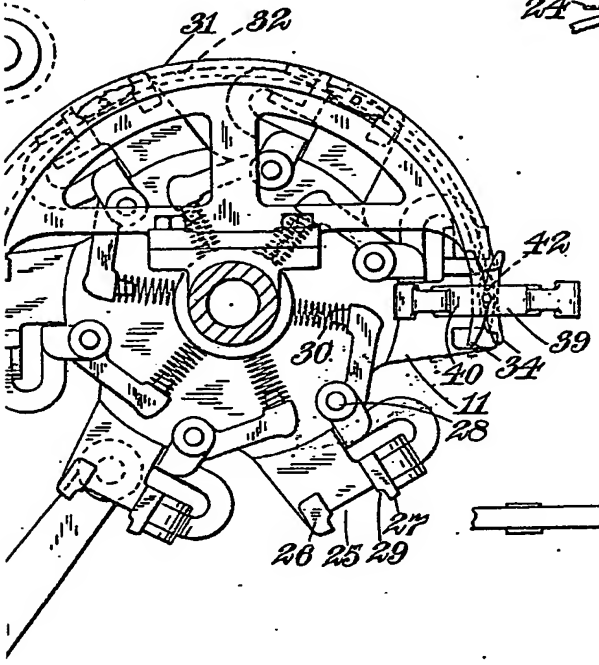


Fig.6.

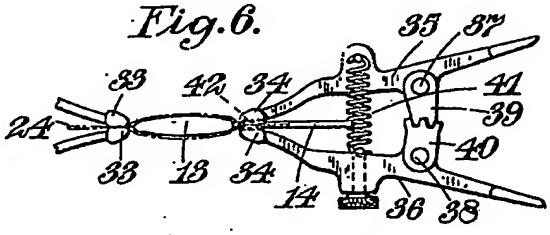


Fig.2.

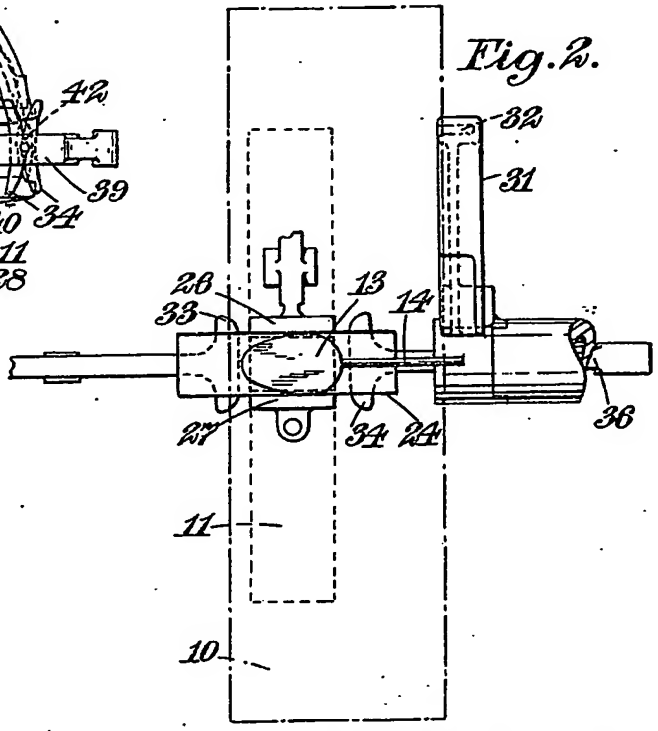


Fig.7.

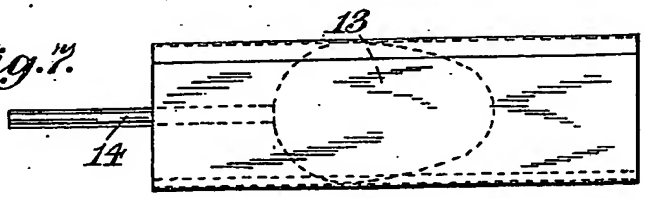
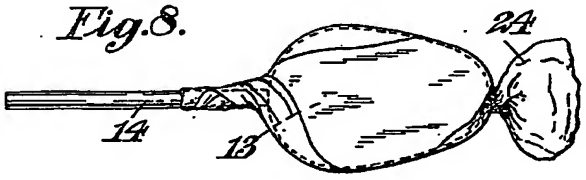


Fig.8.



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328,145 COMPLETE SPECIFICATION

2 SHEETS SHEET

[This Drawing is a reproduction of the Original on a reduced scale]

Fig.1.

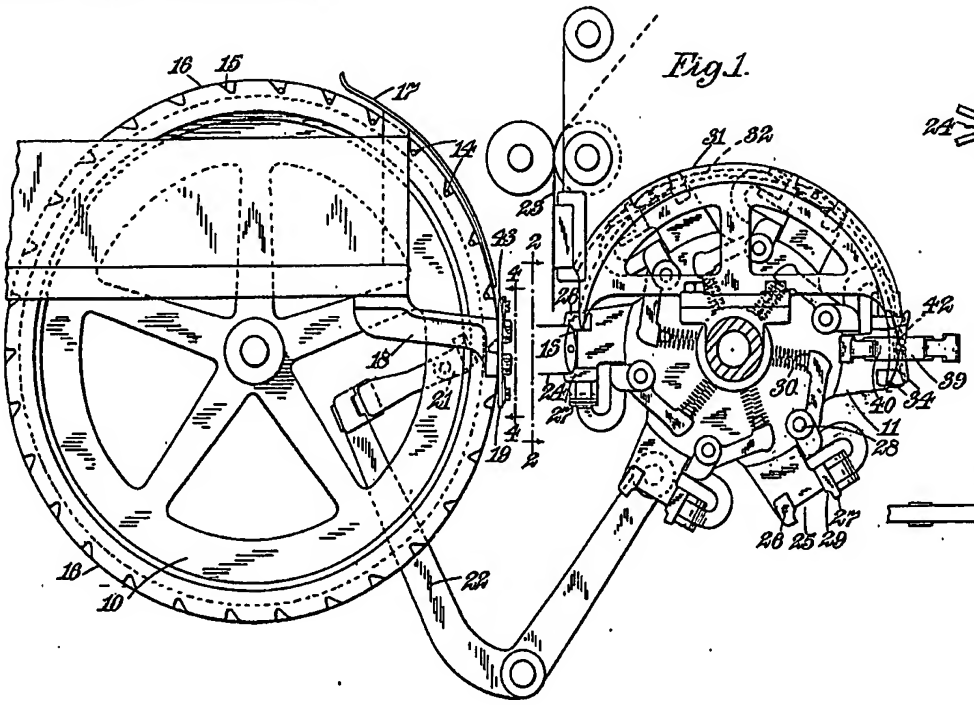

Fig.6.

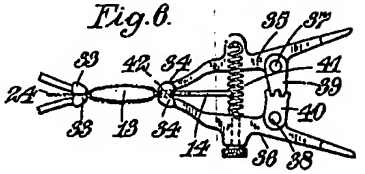

Fig.2.

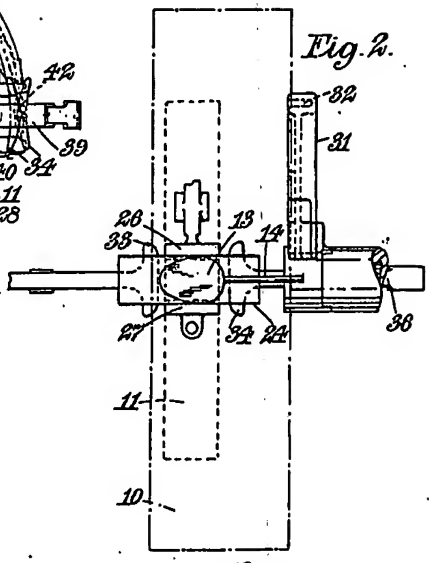

Fig.3.

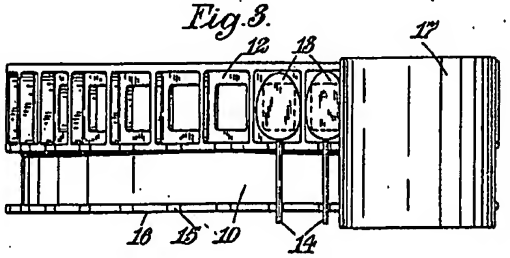

Fig.7.

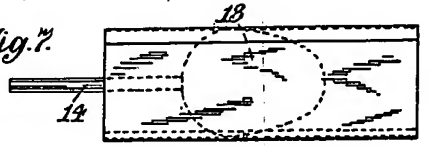

Fig.8.

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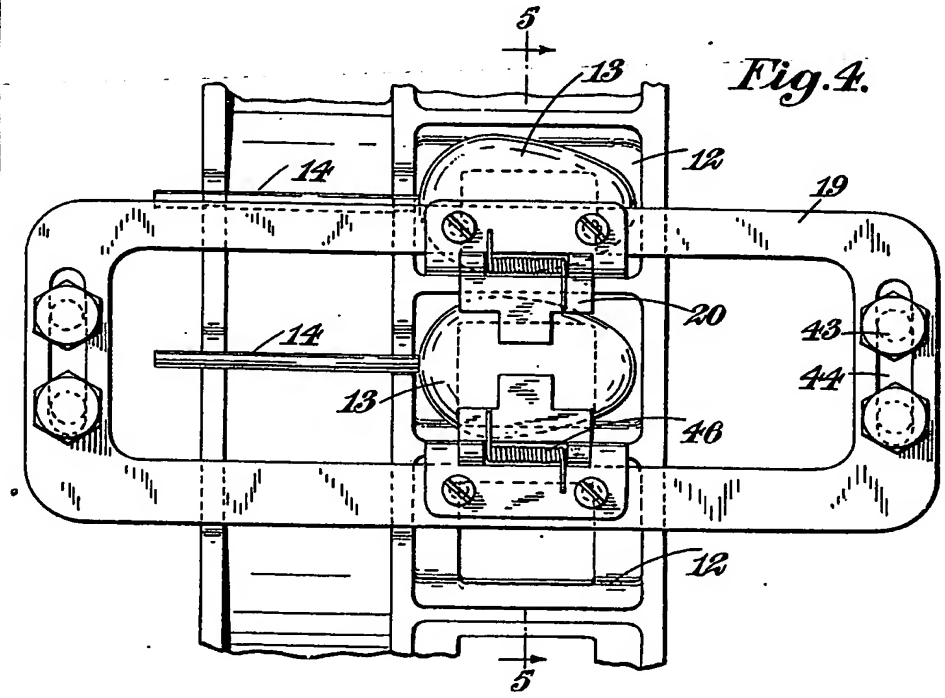

Fig.4.

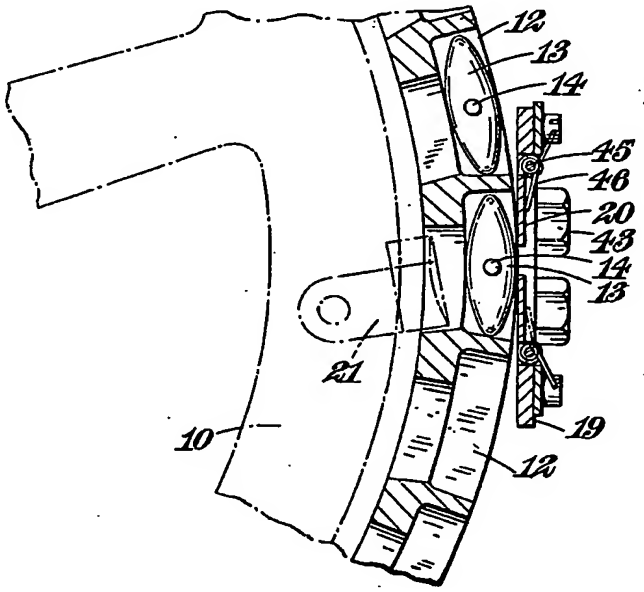

Fig.5.

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